

external surface of the ear grizzled gray and black; internal surface thinly clothed with white hairs; all the upper surface mingled gray, reddish brown and black, distinct black fascia being apparent on the lower part of the back and rump; the base of the fur on all the upper surface is black, succeeded by fawn-white and tipped with dark brown; the lengthened hairs dispersed over the back are black for three-fourths of their length and tipped with white; throat and under surface dull buffy white, the base of the fur being deep gray; arms brownish white; legs grizzled brown and fawn colour; toes covered with long glossy brown hair; tail thinly clothed with short brown hairs on the sides, a narrow line of black along its upper surface gradually deepening as it approaches the extremity, where the hairs lengthen and form a small tuft; under surface of the tail clothed with stiff dirty white hairs, which increase in length as they approach the extremity.

The *female* is so similar that a separate description is unnecessary.

	ft.	inch.
Length from the tip of the nose to the extremity of the tail ...	2	3
_____ of tail	1	0½
_____ tarsus and toes, including the nail	0	4¼
_____ arm and hand, including the nails	0	2¼
_____ face from the tip of the nose to the base of the ear .	0	3¼
_____ ear	0	2¼

I cannot conclude without expressing my obligation to M. Priess for the readiness with which he afforded me the use of these valuable specimens for my "Monograph of the Macropodidæ," and also for his kindness in promising me the loan of the other novelties he has collected.

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II.—*Contributions to Structural Botany.* By W. HUGHES WILLSHIRE, M.D., M.B.S., Lecturer on Botany at Charing Cross Hospital.

[Continued from vol. ix. p. 86.]

5.—IN that remarkable member of the family *Bromeliaceæ*, *Tillandsia usneoides*, I have met with a form of vegetable tissue, which, as far as I am acquainted, has hitherto remained unobserved. I may first remark, that after a lengthened search I have been unable to detect any appearance of stomata in any portion of this parasitical plant, and that I entirely agree with Miquel, that it must be regarded as a *false parasite*, and not as a *true one*. The whole of the stem and leaves of the plant is covered with large transparent furfuraceous scales, the bases of which appear to me to perform a glandular office, and present, with respect to their structure, rather a peculiar

appearance: the cells of which they are composed are devoid of colour, save the four central ones, which are filled with a yellowish green or brown fluid; the fourfold development of the cells appears to be derived from the transverse and longitudinal division of a primordial cell. Beneath the scales is the epidermis, which is composed of a thin cellular tissue, having sinuous walls, next to which is a layer of cellular and parenchymatous matter, whose cells are more or less filled with green, and sometimes purple colouring matter; next, and forming the centre of the stem, is the woody tissue, which is composed of a fine, rather tough, cordlike, and dark-coloured bundle of woody fibre or liber cells, having a very few excessively delicate spiral vessels, the spire of which, however, I have not succeeded in unrolling: the whole of the woody matter is of a bright yellow brown colour by transmitted light. In the leaves the central cord separates into smaller ones, which run parallel with the edges of the foliaceous expansion. It is in the pericarp, however, that the particular form of tissue exists to which I at first alluded: if the inner brown-coloured portion of this organ, which easily separates in the dry state from the external and lighter-coloured layer, be examined, it will be found that it consists of three distinct layers of tissue, the central one of which is very distinct from the others; the upper and under layers are composed of cellular tissue, possessing no colouring matter in the cells, at least in the state in which I have had an opportunity of examining it; the upper or most internal one being very thin and delicate: between them is placed a series of longitudinal fibres or hollow cellular bands, connected together by a great number of small parallel transverse ones, which latter have elongated oval spaces between them. These series of anastomosing bands appear to be perfectly continuous with each other; at the inosculating places of the transverse with the longitudinal ones no septa or partitions exist, and the central hollow of the fibres is like that of a single though variously divided tube. It is from this layer that the deep brown colour of the inner surface of the pericarp is derived, every band or fibre being filled and extended by a brown colouring matter. In the spaces intervening between the transverse bands the colourless membrane of the cellular layers is distinctly seen; a large transparent globule I have also generally observed lying in the centre of the spaces referred to. Now if this structure is to be referred to that form of tissue called *cellular fibrous tissue without membrane*, it certainly can only be regarded as a *variety* of structure not individually noticed before; but I am inclined to believe it is otherwise, and that it is a form having its origin in a manner quite

distinct from that in which Schleiden has shown fibre without membrane arises. It appears to me to have its origin from primordial membrane alone, and that the formation of a secondary layer,—a spiroidal fibrous one,—has nothing to do with it. The layer of tissue at first was a common cellular one, composed of several parallel series of square-shaped cells, having rather wide intercellular spaces between them: as the increase of development ensued, the primary membrane forming the superior and posterior walls of the cells became absorbed, leaving only the lateral ones, which thus formed a series of membranous walls to a continuous and inosculating series of intercellular spaces: the edges of these walls finally becoming connected or grown together, and the intercellular spaces filled with colouring matter, an apparently fibrous tubular layer is the result.

In *Bromelia nudicaulis* it has been remarked by Dr. Lindley, that the membrane of the cuticle breaks into little teeth of nearly equal width when torn; I have observed the same circumstance to occur in *Tillandsia usneoides*.

6.—In the spirally-twisted fruit-vessel of *Loasa lateritia* common cellular tissue is displaced by another structure, in order to admit of that peculiar direction which the pericarp assumes. This structure consists of elongated cells, closely approaching to, or even apparently identical with, one portion of the woody tissue of the stem, and which are marked longitudinally by a single row of dots or pores exactly like those on the ducts of the vascular system of the plant: the fibres of the different layers cross each other obliquely, so that when two layers are examined under the microscope the structure is *netted*, and between each mesh a single pore is seen. The seeds are enveloped in a rather lax covering of membrane, which is traversed by anastomosing tubular fibres of a bright brown colour, and which at the edges of the seed becomes expanded into a wing.

7.—Meyen is right in affirming what has been denied by Korthals, namely, that the glandular hairs of *Drosera* contain spiral structure. In the centre of the hair I have generally succeeded in unrolling a spiral vessel; this by Meyen is said to be single, but in many hairs I have found more than one. Korthals is also wrong in his description of the glandular head: I have never been able to discover any hollow there; the centre is in fact of a dense consistency, formed of elongated cellules, assuming in the mass an oval shape. The whole hair is enveloped by a layer of tissue, which is derived from the epidermis of the leaf, and which in old hairs becomes loose and lax, like a sheath. The cells containing the colouring matter are elongated, fusiform, or club-shaped.